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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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04/19/2005

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EXAMINER

GUHARAY, KARABI

ART UNIT

PAPER NUMBER

2889

MAIL DATE

DELIVERY MODE

11/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/531,949	Applicant(s) MINAMI, MASARU	
	Examiner Karabi Guharay	Art Unit 2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment, filed on 7/27/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16,23-28,47-49,51,52 and 57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16,23-28,47-49,51,52 and 57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/1/09</u> . | 6) <input type="checkbox"/> Other: _____ |

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Response to Amendment

Amendment, filed on 7/27/09 has been considered and entered. Currently claims 1-16, 23-28, 47-49, 51-52 and 57 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

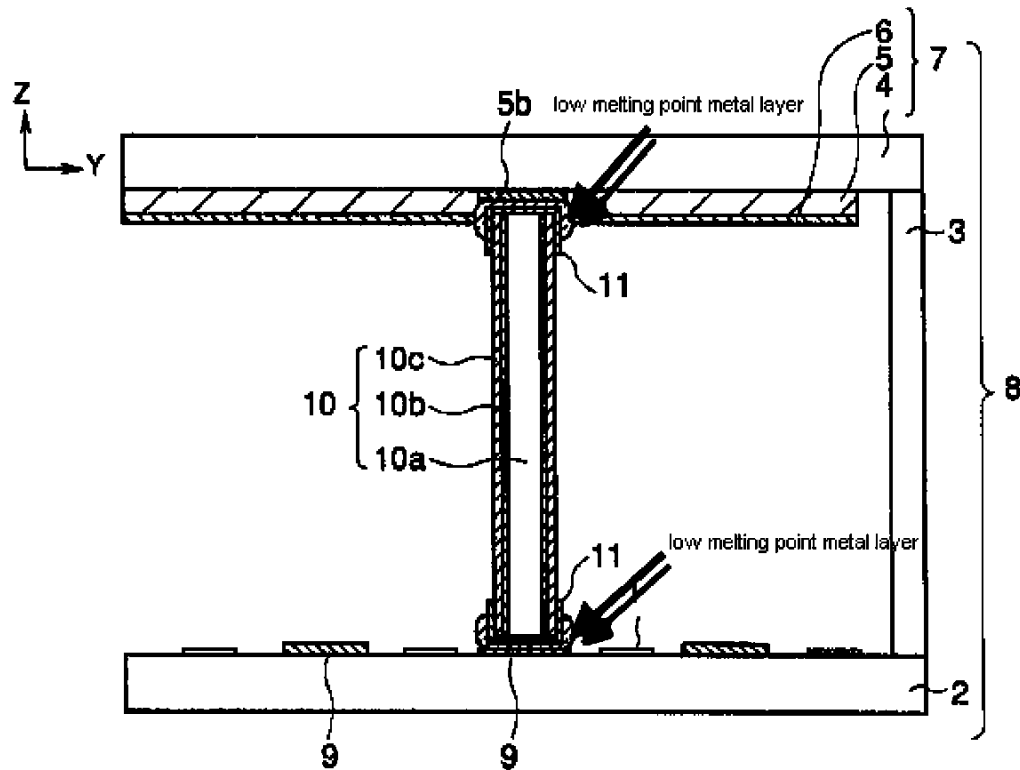
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-15, 23-27, 57 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroda et al. (US 6342754).

Regarding claims 1 & 11, Kuroda et al. disclose a flat panel display and method of manufacturing the display (Figs 1 & 2) comprising a first panel (4) and a second panel (2) which are bonded to each other in their circumferential portions and having a space between the first panel and second panel, the space being in a vacuum state (lines 3-10 of column 10), a spacer (10) extending , as viewed in cross-section, longitudinally in the space between the first and second panel (see Fig 2) to terminate in a first end spacer surface and an opposite second end spacer surface and laterally between a pair of spaced-apart spacer side walls to define a thickness there between ; a first electrode member (metal back 6) extending across and connected to one of the first and the second panel, the first electrode member (6), as viewed in cross section formed with a recess (the region of element 5b; fluorescent layer 5 and metal back 6 formed in strip and black strip 5b is formed in between, thus forming a recess) having a pair of facially-opposing recess side

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walls and a recess bottom wall interconnecting the pair of recess side walls (Fig 1); a second electrode member (9) extending across and connected to a remaining one of the first panel and the second panel (connected to second panel 2); a first low-melting-point metal layer and a second low-melting-point metal layer (not numbered, but shown in figure below), each one of the first and second low-melting-point metal layers being fabricated from an electrically-conductive material having a low melting point (lines 33-34 of column 20); and a first conductive material layer and a second conductive material layer (11), each one of the first and second conductive material layers being fabricated from an electrically-conductive material (made of aluminum; line 15-16 of column 20), wherein the spacer electrically connects the first and second electrodes, wherein a first end portion of the spacer is disposed in the recess with the first conductive material layer (11) disposed on the first end spacer surface and the first low-melting-point metal layer being in contact with and disposed between the first conductive material layer and the recess bottom wall and wherein each one of the pair of recess side walls is in contact with the first conductive material layer (11) and the first low-melting-point metal layer while the pair of spacer side walls at the first end portion of the spacer being spaced apart from the pair of recess side walls.



Regarding claims 2 & 12, Kuroda et al. disclose that the spacer is formed of ceramic or glass (lines 27-29 of column 10).

Regarding claims 3-4 & 13-14, Kuroda et al. disclose that the first and second panels are bonded to each other in their circumferential portions through a bonding layer made of frit glass, which is a low melting point material (lines 30-44 of column 20).

Regarding claims 5 & 15, Kuroda et al. disclose that the flat-type display is a cold cathode field emission display (lines 32-36 of column 9), the first panel (7) is an anode panel in which an anode electrode (6) and a phosphor layer (5) are formed, and, the second panel (2) is a cathode panel in which a plurality of cold cathode field emission devices are formed (see Fig 2).

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Regarding claims 6 & 23, Kuroda et al. disclose a plurality of recesses for receiving the first end portion of the spacer are formed in the first panel (plurality of spacers each is connected to the corresponding recesses).

Regarding claims 7 & 24, Kuroda et al. disclose that the spacer is formed of ceramic or glass (lines 27-29 of column 10).

Regarding claims 8-9 & 25-26, Kuroda et al. disclose that the first and second panels are bonded to each other in their circumferential portions through a bonding layer made of frit glass, which is a low melting point material (lines 30-44 of column 20).

Regarding claims 10 & 27, Kuroda et al. disclose that the flat-type display is a cold cathode field emission display (lines 32-36 of column 9), the first panel (7) is an anode panel in which an anode electrode (6) and a phosphor layer (5) are formed, and, the second panel (2) is a cathode panel in which a plurality of cold cathode field emission devices are formed (Fig 2).

Regarding claim 57, Kuroda et al. disclose that the second conductive material layer (11) is disposed on the second end spacer surface (end of spacer near the cathode panel 2) and the second low-melting-point metal layer is in contact with and disposed between the second conductive material layer (11) and second electrode member (9, see Fig 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 16 & 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda et al. as applied to claim 1 above, further in view of Spint (US 5990614).

Regarding claims 16 & 28, Kuroda et al. disclose plurality of recesses formed on a panel where anode and phosphor layers are formed but fail to teach recesses in cathode panel for fixing the spacers.

However, Spindt in the same field of flat panel display, discloses plurality of recesses formed both in anode panel and in cathode panel (see Fig3) in order to fix the spacer 16 between the panels.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form recesses in both the panels as taught by Spindt in order to secure the spacers between the panels.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda et al. as applied to claim 1 above, further in view of Toyota et al. (US2003/0190772).

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Regarding claim 47, Kuroda et al. disclose all the limitations of claim 47, except for a partition wall formed on the substrate of the first panel between phosphor layers and the light absorbing layer formed between the substrate and the partition wall.

However, Toyota et al. in the same field of flat panel display, discloses partition wall formed on the substrate (30 of Fig 1) of the first panel (AP) between phosphor layers and a light absorbing layer formed between the substrate and the partition wall (see paragraphs 248-250).

Toyota et al. further teaches that such partition between one phosphor to another phosphor on the anode substrate prevents optical cross talk and light absorbing layer between phosphor and between partition and the substrate provides improvement in the contrast of a display image.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate partition between different color phosphor in order to avoid color mixing and providing a light absorbing layer between the substrate and the partition so as to increase the contrast of the display.

Claims 48-49 and 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda et al. as applied to claims 1 & 11 above, and further in view of Niibori et al. (US 2004/0075378).

Regarding claims 48-49 & 51-52, Kuroda et al. disclose all the limitations except for the melting point of the low melting point metal having between 120 degrees centigrade to 400 degrees centigrade.

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However, in the same field of flat panel display (image display apparatus), Niibori et al. teaches joining of spacers, with low melting point metal such as solder material which has melting point between 120 degree centigrade to 400 degree centigrade, also further teaches that such materials being low melting point metal reduces significantly amount of heat applied at the joining of the spacer, thus eliminating a strain in spacer assembly (paragraph 72).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use first metal material layer is formed of a low melting point metal such as solder, having melting point between 120 degree centigrade to 400 degree centigrade, as taught by Niibori et al., in the device of Kuroda et al., since such low melting point metal material will reduce significant amount of heat applied at the joining of the spacer, thus eliminating a strain in spacer assembly.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is 571-272-2452. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on 571-272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karabi Guharay/
Primary Examiner, Art Unit 2889